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ABSTRACT

In 1982-83, a study was undertaken at the City Colleges of Chicago (CCC) to ascertain the attributes and learning processes of high-achieving students of relatively low aptitude so that these attributes and processes might be taught to other students to improve their achievement. Interviews were conducted with 26 CCC students who belonged to or were eligible to belong to the campus honor societies, and who had relatively low reading placement test scores. During the interviews students were asked about their background, financial concerns, high school background, college choice, study and work habits, in-class activities, teacher relations, personal goals, extracurricular activities, and satisfaction. Study findings included the following: (1) involvement, review/restudy, selectivity, and planning seemed to be the major processes responsible for academic success; (2) in-class involvement was demonstrated by regular attendance, taking notes, asking questions, and participating in discussions; (3) students were careful to choose an efficient study atmosphere out of class and took advantage of additional resources as needed; (4) students compensated for their academic weaknesses by taking refresher or developmental courses, building basic skills, reading for practice, and reviewing and restudying course material; (5) students were highly selective in what they chose to study; (6) they planned ahead for the short- and long-term; and (7) they possessed strong motivation to achieve success. (LAL)

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STUDENT LEARNING PROCESSES:

HOW POORLY PREPARED STUDENTS SUCCEED IN COLLEGE

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Student Learning Processes:

How Poorly Prepared Students Succeed in College

John Q. Easton and Rick Ginsberg

Public concern over declining academic achievement at all levels of education has created a demand for improved teaching and learning for all students. This research paper concentrates on the effective learning processes of high-achieving community college students of relatively low aptitude. We have investigated in depth the learning characteristics of a sample of City Colleges of Chicago students who have achieved better than we would predict from their previous academic success and aptitude. The purpose of the study was to ascertain what common alterable attributes (Bloom, 1981) these students share. This work has centered on study habits and learning techniques that other students might acquire, rather than on traits like personality or family background that neither students nor educators can change. In many respects this study is modeled on previous research conducted at the Center for the Improvement of Teaching and Learning (CITL) that identified common teaching processes of highly effective City Colleges teachers (Guskey & Easton, 1983). In seeking a more complete understanding of the teaching and learning process at the community college level, we designed our current study to discover what successful students with average or low ability do that other students might do to improve their work in college. The implications of this research are great for improving education at secondary and other post-secondary levels.

Educational researchers have predicted student performance in school from many different independent variables. In general, they have been most successful with the kinds of variables that are the least amenable to change--parental socio-economic level (Jencks, 1972), home environment (Kalinowksi &

Sloane, 1981), intelligence and aptitude (Jensen, 1980; Lavin, 1965), and previous school achievement (Bloom, 1976). Under conventional teaching conditions, these variables are highly predictive of student success in school.

Several personality or psychological variables like self-concept (Hanford & Hattie, 1982; Shavelson & Bolus, 1982), locus-of-control and achievement motivation (Atkinson, Lens & O'Malley, 1975; McClelland, 1972) are also predictive of student achievement, although not as strongly as the others. At the community college level, Griffin (1980) has shown the significance of these variables in predicting success. While this type of research suggests certain qualities of successful students, it does little to help teachers and others improve education for students. Background attributes are impossible to transmit from one student to another, and these personality attributes are also very difficult to teach to students.

Research on study skills and habits is much more in line with the goals of the present study. Successful high school and college students use a set of study skills that predict achievement independently of their aptitude (Brown & Holtzman, 1955). Students who know how to study and have efficient study methods achieve better in school than other students. We are working in this same tradition of research looking for the types of skills and habits that can be taught to many students and do not depend on especially high aptitude. Researchers have planned improvement programs based on these techniques in the past and have raised students' achievement levels with these interventions (Kirschenbaum & Perri, 1982).

Recent research on teaching processes has shown that certain teacher behaviors are highly associated with student performance. Brophy (1982) gives a careful summary of these findings at the elementary school level. Our own work at the City Colleges shows that effective teachers are well

organized, they are student oriented, they provide regular feedback to students, and they actively engage students in classroom participation (Guskey & Easton, 1983). These are processes that we believe can be adopted by other teachers and do not represent immutable characteristics of teachers. In pilot work, we have assisted small groups of teachers in using these practices in their own teaching and plan greater implementation of these findings in the near future.

The purpose of this study is to identify student learning processes that can be taught to other students to improve their achievement. This study used indepth interviews to collect data on successful students, permitting us to obtain a rich source of information on study techniques and other methods and practices that may be imparted to other students.

METHODOLOGY

Student Selection

Our goal in selecting this sample was to obtain a group of students who had done very well in college yet were not necessarily high aptitude students for whom achievement came easily. We wanted to interview students who earned high grades through diligent study rather than by virtue of high intelligence. Some might call these students "overachievers." We set the following criteria for selecting the sample. Students:

- entered CCC in Fall 1981 or Spring 1982,
- spoke English as a native language,
- resided in Chicago,
- enrolled in four courses per semester,
- belonged or were eligible to belong to the campus honor society.

From the list of students who met these criteria we then chose the students with relatively low reading placement test scores.

We first applied this process at Loop College, a downtown campus that draws students from the entire city of Chicago. Forty-four students met

the first set of criteria, and from these we chose twenty-two students with low reading placement test scores. We invited these students to participate in the study and interviewed nineteen of them. The process was repeated on a smaller scale at two other City Colleges, both of which are distant from downtown Chicago. This sample was extended so that we could generalize our findings beyond one college. We interviewed three students at Wright College and four at Olive-Harvey College.

Student Characteristics

The following figure describes the twenty-six students interviewed in this study. Our experience with City Colleges students indicates that this group is representative of the population of full-time students meeting the previously listed criteria.

Average Age: 21.5 Years (S.D. = 7.7)

Average reading placement score at college entry: 7.6 grade equivalent (Nelson-Denny Form E, comprehension plus vocabulary)

Student Sex: 21 Women, 5 Men; Race: 21 Black, 3 White, 2 Hispanic

Living Situation: 18 live with parents; 6 live with spouse, children, or others; 2 live alone

Children: 4 have children (an average of 2.5 each)

Work: 10 have part-time jobs (18 hours/week average); 4 looking for jobs; 12 unable or chose not to work

Academic majors: 7 liberal arts, 6 data processing, 6 medical-related, 3 electronics, 2 business, 2 law enforcement

Career Goals: 4 data processing, 4 medical ancillary, 3 business, 3 computer programming, 3 computer/electronics technology, 2 physician, 2 teaching, 2 law enforcement

Interview Development and Interviewer Training

Staff members at the Center for the Improvement of Teaching and Learning developed the interview questions for this study using several background sources for guidance, including previous research on effective students and

their study habits, CITL research on effective teachers, personal experiences of the researchers as students and teachers, and feedback from trial interviews with City Colleges students. The processes of interview schedule development and interviewer training overlapped since the interviewers revised and reworded questions as they gained experience with students on the trial interviews. Our goal was to produce a set of questions that elicited meaningful responses, were unambiguous, and could be asked (and answered) in natural and appropriate language. The interview questions appear in Appendix A of this paper.

Two interviewers conducted all but two of the student interviews; a third staff member did the others. Since the interviewers were involved in writing and revising the questions, they were familiar with the purpose of each question. All three interviewers conducted two trial interviews with City Colleges students and reviewed these sessions with a second interviewer. By the time the first regular interview took place, each interviewer had spent approximately twenty hours discussing, revising, practicing, and reviewing the interview questions.

Data Analysis

The interviewers tape-recorded the interview sessions and shortly after each session replayed the tape and summarized the data on a four-page form. The sheet provided ten categories for these summaries: background information, financial concerns, high school background and choice of college, college, study and work habits, in-class activities, teacher relations, personal goals, extracurricular activities and satisfaction. The interviewers wrote the summaries using both their own descriptive language and as many direct quotes as possible.

From these summaries the interviewers developed a checklist of 42 short items to code all of the interviews directly from the tape-recordings. The coding system used a three-point scale to indicate positive evidence (+), no

evidence (0), or negative evidence (-) in the interview for each of the items. Some sample items from this checklist were: "took refresher courses first semester," "studies alone," "summarizes chapters and/or notes," and "sits in front of the classroom." Following considerable practice and revision of the checklist our interview team was able to reach an agreement rate exceeding 90% on four consecutive interviews. Once we reached this criterion we coded the remainder of the interviews individually. (The coding sheet is attached as Appendix B.)

We used the complete set of interview summaries, the checklists, and four verbatim transcripts as sources for this data analysis. We searched the data for a set of categories or key factors that appeared repeatedly throughout the interviews and described as completely as possible the preponderance of the data. In other words, we looked through this data for categories that explained most of what the students revealed in the interviews. After revision and reconsideration we chose four major headings that described the students' study habits and techniques and a fifth category that contained personality characteristics of the students. The four categories of study techniques were not mutually exclusive. We will define and discuss these categories in the following pages. We draw most heavily on direct quotations from the students to support our findings and occasionally use percentages or proportions derived from the coding sheets.

RESULTS

We have identified four major processes that appear to be responsible for these students' academic success. Involvement, review/restudy, selectivity, and planning all characterize their learning approach. Involvement is participation in learning both inside and outside of the classroom; review/restudy is the process students utilize to study and correct both short and long term weaknesses; selectivity refers to the students' discrimination in

what and how they choose to study, their choice of friends, classes and teachers; and planning is the conscious short and long term preparation students undertake to foster success in school. These processes appear to be alterable--that is, under advantageous conditions other students could be taught to apply these processes themselves. In addition to these four alterable processes, we find the excellent students to be extremely goal oriented. The remainder of this paper discusses each of the four alterable learning processes and the motivational component in detail.

Involvement

One of the most significant findings of this study is how these students maintain a remarkably high level of involvement in their academic work. When involved with a subject these students pay attention, think, work through ideas and questions, and relate new concepts to previously learned ones, all in order to understand the new material as thoroughly as possible. The students vary in the intensity or degree of their involvement from time to time or place to place, yet overall they all exhibit a high degree of involvement in their academic work. For the purposes of this paper and the presentation of the findings, we distinguish between involvement in and outside the classroom.

Involvement in the Classroom

All of the students portrayed several different methods and specific personalized techniques for attaining a high level of involvement in classroom learning. The typical pattern of classroom involvement includes attendance, paying attention in class, taking notes in class, and asking questions and participating in class discussions. The following paragraphs show the great variety of techniques that these students use to accomplish their classroom involvement.

Regular class attendance is an essential prerequisite to learning course material and is the first step that all of these students take to become

involved with their school work. "I attend all the time" is the most common response to questions concerning attendance. They understand that in order to "know what's going on," they must be physically present in the classroom to see and hear it. Attendance is not seen as important for its own sake, but rather for the opportunities that it provides for learning. Several students mentioned that absenteeism is the single most important reason why other students do poorly in college. When the honor students do miss class (due to illness or other unavoidable reasons), they invariably ask a fellow student or the teacher for missed notes and assignments.

Being in class itself may be necessary for learning, but it is not sufficient. While in class you must pay attention: "If you can't hear you can't learn." As a first step for paying attention in class, the students sit in the location that they find most suitable for seeing and hearing the teacher. About two-thirds of the students prefer to sit in the front of the room where "you haven't got any choice but to sit and listen" and "you pay more attention." One woman prefers the last seat in the front row, "so people won't be on each side." These students sit in the front not only because "students in the back are too noisy," but also for more subtle and complex reasons: "I sit in the front and look in the teacher's face like he's giving me a private lesson"; "in the front the teacher even gets to know you better"; and "that is where the teachers pay attention--if they see you wandering off, they let you know!" These statements indicate that the students sit in front to see better and increase their chances of learning and getting better grades.

Other students are able to concentrate equally well in the middle of the room, but they avoid sitting close to friends "so they don't encourage me to talk." Also, they leave their newspapers on the floor so they are not tempted to read them during class. None of the students claimed a preference for the back of the classroom. To concentrate on the teacher and shut out possible

distractions, the honor students sit in the middle or toward the front of the classroom.

The students focus on the instructor and class material through most of the period, yet some occasionally find their minds wandering off the subject. To get back on task they tell themselves, "I need the course" or "I have time to daydream after class" or "I try to focus on the material being presented in order to maintain concentration." These self-reminders are useful ways for students to recapture attention when they become bored or distracted.

All of the students in the sample take notes during class, though there is variation in the comprehensiveness of the note-taking. Some students try to write down everything that the teachers say, stopping them when they talk too fast. Other students write down only the key words or key concepts, what they believe is most important or what the teacher has told them is most important. The more selective note-takers often write in their own words rather than the teachers'. All of these students use their notes outside of class in doing homework and studying for tests.

The final commonality in the in-class behavior of these students is that they ask questions when they are perplexed by the lecture or if they miss something. "I don't make problems for myself...if I miss something, I ask him. That's what he's there for." Although there is some slight reluctance to ask questions when they feel unprepared or believe that they will be reprimanded for not having heard an explanation, in general the students have overcome such difficulties and freely ask the teachers to repeat, clarify, or explain points that they do not understand.

To summarize, the students all attend class regularly, are highly attentive in class, take notes, and ask questions and participate in discussions. Within each of these areas there is variation among students and within students from time to time or class to class. The students use different note-taking

techniques and different methods of regaining lost concentration. In general, our effective students want quality time in the classroom with high concentration and minimal distractions.

Out-of-Class Involvement

These students are similarly highly involved in their school work outside of the classroom. They are very successful at limiting the distractions that may inhibit their involvement. All of the students have developed techniques applicable to their personal circumstances and preferences that assist them in limiting distractions and enhancing involvement and learning.

While the students have many different study habits and techniques, they are all able to describe fully the conditions of their studying -- when they study, where they study, and how they study. They all have favorite "study atmospheres" most conducive to learning. This atmosphere, which may differ from student to student, is distraction-free, containing only those materials or persons that directly relate to school studies. They students prefer locations that provide complete quiet and few interruptions. For many students, this means studying in secluded areas at home: "I enjoy studying in a quiet environment...my bedroom...need a flat surface with a good chair"; "I study in the kitchen, away from the TV." One young mother explained that she gets home from school, attends to housework, takes care of her children, sees that they do their homework, but at 6:00 p.m. "Mommy has to study...(she) is not to be disturbed." For other students, their home environment contains too many distractions, so they prefer to study at school, usually in the library. Many students like the library because it is quiet: "home gives you excuses for not studying...the library is a nice quiet atmosphere."

Along with a quiet location, the students avoid many of the pitfalls which can detract from studying. None of the honor students studies with music on. Indeed, one woman explained that with music on, a student was likely to listen

to the music and avoid studying. Similarly, several students depict television as a diversion to be avoided. A number of students purposely study in locations away from television. Others shun the medium completely. "After high school, I just stopped watching television...I realized I'm looking at garbage." One woman revealed that she used to watch TV all the time but has quit now that she is in school. The students also limit their outside social activity, another time-consuming, distracting element. "You don't have time to party or talk on the phone...you have to study." "When I socialize, I slough off." "If you're too busy hanging out with your friends and going to disco on the weekends... all you're going to learn is how to dance, and anybody can dance!" Several students had no time for non-academic extracurricular activity because they preferred devoting the time to their studies.

In choosing an efficient study atmosphere, the students carefully consider whether they will study alone or with other students. About half of the students study exclusively alone because "in groups there is too much socializing." There are "too many minds pulling in different directions" and "with friends you talk about other things." One student said succinctly, "I sit alone to do my homework. No one bothers me." The other half of the students find that studying with one or two students can be highly effective, especially if the other students are high-achieving students. "Sit down with somebody who's doing better than you," is a common theme among these students. "It's good to have other people to study with," one student advised, "because if you don't comprehend, someone else might."

A final factor apparent here is that these students take advantage of additional resources when they need them. All of the students use dictionaries constantly--"I almost used one up"--most often to look up word meanings. They also refer back to textbooks that they used in introductory classes or reading classes to help them when they need it. The students in this sample also used

tutors and other college resources (computer-aided instruction, counselors, and advisors) for assistance. They recommended these resources very highly to other students who are not doing as well as they are.

This group of honor students is highly involved in their learning both in class and outside of class when they study and prepare for tests. They employ a wide range of techniques for maintaining this high level of involvement, keeping themselves attentive and actively learning their class assignments.

Review/Restudy Systems

Another general process that these successful students have in common is the way in which they embed a review/restudy cycle into their study patterns. This review process occurs both in the long run and in the short run within specific semester-long courses. Almost always the students review or restudy when they encounter or perceive personal academic weaknesses. They go back over certain material or subjects and study until they feel more confident of their understanding. In the long run when students are aware of general weaknesses such as poor reading skills, weak mathematics backgrounds, or ineffective study habits, they undertake plans to improve themselves either by taking certain classes or by following self-study programs. Similarly, in the short run, when students receive a poor grade on a test or fail to complete an assignment properly (indicating to them a lack of understanding), they invariably go back over their problems with increased effort.

The colleges recommended that many of the students in this study register for developmental or refresher courses in their first semester because of their relatively low reading placement test scores. About half of the students took one or more developmental courses in the first semester. In general, the students recognize their weaknesses in reading and accepted the placement test scores as confirmation of what they already knew ("I always

had trouble comprehending."). Many students discussed useful counseling experiences where they recognized the importance of strengthening basic skills at the beginning of their college careers. In most cases the students chose these refresher courses freely: "I didn't have a very good math background so I took the 100 course thinking I would build up my math"; "I was uncertain about my reading skills and I figured I would take this to help me with the skills I had lost." The students viewed these refresher courses as an important way to review in areas where they were weak, thus increasing their ability to do very well in subsequent college level courses.

Whether or not students took refresher or developmental courses during their first semester, those who perceived any academic weaknesses continued to work on building basic skills in the fundamental subjects. Many of the students in this group use self-help and self-study books; do vocabulary building exercises; use special flash card systems to study basic material; and refer to reading, math, or study skills textbooks they used in previous classes. One woman, for example, writes down all the words she doesn't know on index cards, then puts the meaning in her own language to review the words constantly. Another pronounces all words out loud and breaks them into syllables, because "sometimes how a word sounds can tell you what it means." Most of these honor students recognize the usefulness of general, non-school related reading as a means of improved reading skills and hence school achievement. These students recongize that they have had difficulty reading ("I just take books and read them to get me to understand things because I always felt that I was missing something.") and read for self-improvement. Some students do read for enjoyment, but more often they read to "get myself used to reading" because "the more you read the more you learn."

Besides these general self-improvement strategies (taking refresher courses, study skill improvement, and reading for practice), the students

also review and restudy their specific course material on a regular basis. Some students review their notes before or after each class. Students read chapters into a tape-recorder and then play them back for review. Students are also very likely to review and restudy when they sense academic difficulties. The students use whatever evidence is available to them to indicate what they have learned well, and perhaps more importantly, what they haven't learned as well as they should have. Most often the evidence about academic progress (this is often called feedback) comes to the students in the form of test scores ("my grades tell me how I'm doing.") and the tests themselves ("go over the test and ask which questions I got wrong.") The students also want to know specifically what their problems are ("If I mess up I want to know exactly why...") so that they can "go back to that material and find the answers." When the students cannot ascertain for themselves what their exact problems are, they seek more detailed information -- "If I can't see what's wrong with my work, I want them (teachers) to explain to me what it is that I have done wrong so that I can correct it." Classroom discussion and question and answer sessions also indicate how well students are learning the material and guide them to review and restudy.

Once the students recognize and pinpoint their errors or problems, they study harder and if needed, find some help. Overall the students have no particular techniques that they use to correct their difficulties, but they work harder. When necessary they look for assistance from the teacher, from a tutor, or in some cases from another student. If they fall behind in class, these students "cancel everything else and do the necessary work to catch up." When one student gets a poor grade, he "...talks to more people to see what they're doing, see who did get a good grade and talk with them. We can get together and study. Maybe he can explain to me what the teacher cannot

explain. Maybe he can break it down further, better for me." On the whole the students appear to try their own resources first, and if they still have difficulty, then they seek out additional help, usually from a teacher or tutor, but occasionally from a peer.

In summary, these students regularly review areas where they are weak. If they perceive general weakness in fundamental subjects, they willingly take refresher courses. In addition, these students work continually to improve their basic skills in reading, math, and study habits. They also review and restudy course material when they have evidence, usually in the form of test scores, that they have done poorly. Most often this restudying takes the form of going back over the original material (notes or textbooks) and then using other resources if necessary.

Selectivity

A third general process that these students demonstrate in their studying regimen is that they are highly selective in what they choose to study in greatest detail. This process of selectivity is apparent during class time when the students are alert to teacher signals and cues; it is apparent in doing homework assignments and preparing for tests when they look for signals in the textbook and in their notes; the selectivity process is also involved in choosing courses, programs, and friends most suited to the students' needs. The students use discretion in choosing the material that they will become most highly involved with, thereby becoming more efficient learners who concentrate their energies on the key ideas in a lecture, in a reading assignment, and throughout a course. Students base these decisions on several sources of information, especially teachers' advice or signals.

When the students are paying attention in class, listening to the teachers and trying to understand and think about the subject matter, they

are also attempting to distinguish key ideas and concepts from less important material. They look for signals or cues from the teachers as to what the critical ideas are. This is a relatively easy task since most teachers tell what is important, "what to look for" and "what to study." Students use these teacher directions in class to guide their thinking and attention; out of class the teacher cues guide studying and preparing for tests. The students definitely "pay attention to what the teachers tell you to get." This selection process represents focusing and choosing the essential parts of the subject.

These successful students' study techniques and habits have been mentioned briefly before in this paper. The students use a great variety of different techniques with a common factor among them that can be summed up with one comment, "Try to find the main point." Just as students look for teacher cues on what to study and attend to in class, they also seek these cues and signals elsewhere. For example, when these students read textbooks, they have several techniques to look for the important points: read the chapter summaries first and pay careful attention to subtitles and outlines; read the introduction twice, skim the test to get an overview, reread, "outline the chapter to find out what is important first;" "ask what is important while you read," "look for what the teacher said in class while reading in the book." One student underlines "short things that you can remember," and another "puts check marks next to things the teacher discussed in class because that is what is important and should be studied."

The students are also selective in their choice of friends or school associates, looking for successful students who will either guide or assist them. We have already discussed how some students choose "study-buddies" from the high-achieving students. In the same way that the students look for the main point and the key ideas in their reading and studying, they look for associates who will lead them to the major goals of schools: "I notice

the people who seemed sort of bright in the class I was in and would watch them go to the library and would talk to them and we'd start studying together"; "Hang around with people who want to be something." The importance of selectivity in friends is epitomized by the student who warned, "You can get bad grades by sticking with the wrong crowd."

Two other illustrations show how these students are selective in their school work. When they review and restudy, they go back only to areas where they are weak and must have a firm understanding in order to succeed in the future. Also, in planning their school programs, students select the courses that are most relevant to their major or career goal. (This planning aspect is discussed in the next section of this paper.) In both of these instances students base their selections on teacher and counselor recommendations.

Planning

The honor students realize that success in both school and life requires some organization and planning. The students constantly consider how they might improve their school work and relate schooling to future plans. Planning ahead for these students has a short term component (in class, at the City Colleges, etc.) as well as a long term component (future schooling and career).

Short Term Planning

In terms of more immediate concerns, such as course selection, achieving good grades and addressing remedial needs, the students develop a variety of plans. The kinds of courses taken by the students are important, the proper sequencing of courses being the key. Some get "general courses out of the way so you can concentrate on your major." Others recommend taking "required courses, not too many electives." Still other students choose classes that relate to their major. Most students seek advice when selecting courses, relying to a considerable extent on counselors and advisors who "can set you on the right track." Several students seek the advice of peers in selecting courses; some

rely on their own good judgement for planning. "I try not to get myself right into them (classes). I look them over, get a little insight, then plan." Along with seeking advice and taking the proper sequence of courses, students search for classes related to their interests, since they find courses which are interesting to be easier. "Get courses you will be interested in," one student said. "You will like them better." Other students feel that course selection at the start of the school career should be approached with an open mind so they can more adequately determine their interests. Planning course selection is an important aspect of succeeding at school according to honor students.

Related to planning for course selection is the self-analysis that leads these students to an awareness of their remediation needs. The students know where their weaknesses are, and they plan strategies to develop needed skills (see Review/Restudy section). For many students this means entering a program at the beginning of their college careers to fortify their knowledge of basics. Other students simply take a number of "brush up" courses in their weak subjects. Several students have attended "remedial seminars to improve reading and test taking." Some seek tutorial assistance when problems arise. Many students attempt improvements on their own in areas such as reading, forcing themselves to do extra work in the area in order to improve. In their planning for success in school, these students identify their learning weaknesses and pursue means of correcting any difficulties.

A final aspect of short-term planning is specifically related to the pursuit of academic excellence. In their approach to studying and test taking, the students plan strategies which will guarantee their success. Most students prepare well in advance for tests. Few cram at the last minute. One woman says that you must "organize your study and use your time right." Studying in advance relieves tension for these students. "If you work hard, you have confidence on tests." Another woman suggests that if you do your

homework, you know what to expect on tests. One student claims that working hard at the beginning of the semester makes the rest of the year easy. Several students also make out strict schedules to follow. "I actually work out all the hours of the week...work hours, study hours, cleaning time, laundry time and all of this." The students plan ways of learning the course material, along with selecting courses and rectifying their weaknesses, to insure their success in their classes.

Long-Term Planning

All of the plans for short-term success in their present programs are geared toward more long-term goals. The honor students have plans for their future, and their short-term successes provide the groundwork for those plans. Most students select a major with their eyes to future career options. Not only must the major be interesting, but it must promise job potential for the future. "I want to be a computer operator; that's where the jobs and money seem to be." Almost all of the students plan to go on for more schooling. Most have a college or university picked out. One woman suggests taking only those courses that give college credit, fitting your "overall plan." A young man advises students "to find out what your plans are for the future, what classes you will need." Some students aren't so specific about a career or even about future college plans, but have a more ambiguous long-term orientation: "If you achieve, you have a good background when you look for a job"; "I want to do well to prepare myself for the outside world." Whatever the specific goals, the students have long-range goals that they hope to attain and they direct their academic efforts accordingly.

Goal and Success Orientation

A common trait of the honor students, more personal than the four processes enumerated and certainly more difficult to teach, is their strong motivation to achieve success during their lifetime. The majority of students come from poor

neighborhoods, many from single parent homes, most attended public schools and were only average or poor students in the past; but now they are motivated to succeed. They want to do well in school and enter successful careers. For some, encouragement comes from parents, other family members, teachers or friends; for others, a strong sense of self-motivation appears. But all of the students have short and long term goals inspiring them.

In the short run, most want to learn as much as they can, get good grades and have an opportunity to attend a four-year college. The vast majority want all A's in their classes: "I want to be the top student"; "I want to get as much as I can from a class. It's a waste of time if you don't"; "What's the use of going to school if you're not going to achieve"; "If you want to get something out of school, you have to force yourself to study even if you don't want to." As is clear in the previous sections, the students have learned what it takes to achieve in school, and they apply the techniques in order to attain good grades.

The students also believe that success in school will open doors for them in the long run and assist them in improving their present status: "A high school diploma doesn't mean anything today. In college I can attain the necessary skills to be somebody"; "When you go to college, all the doors open to you. (After college) you've got a good background when you go look for a job"; "If I could further my education, I could succeed in whatever I wanted to do"; "I feel if I graduate on top I will have good chances." Many students select careers, such as in the medical area and computer or high technology fields, where they feel job openings will be plentiful when they complete their education. "That's where the jobs are," several students explained.

The honor students also long to improve their current living situation, and they depict education as the ticket out of their present circumstance: "You only live once. Why be on the bottom when you can be on the top?"; "I don't

want to be a gas station attendant all of my life." Two students went on in some detail:

> I want to be somebody. I want to be able to do things. When I walk down the street and see drunks and all that stuff, I just tell myself "I want to make something out of myself," and that just makes me work harder towards my goal.
>
> When I look around at my mother and sister and other people that really don't seem to care much, I think it made me want to do more. If nobody else in my house does anything, at least I could be the only one to try and do something.

The students are strongly goal oriented: they have specific ideas about what they want out of life and how education will help them to achieve their goals.

CONCLUSION

This research identifies a set of learning processes common to a group of low aptitude, high-achieving students in the City Colleges of Chicago. High involvement, selectivity, review/restudy techniques, and planning are part of the approach to learning taken by each student in this interview study. We believe that each of these processes can be taught to other students; these are alterable processes. This belief stems from the fact that they are not fixed variables (like intelligence or home environment, for example) but rather are skills that fall in the purview of educators. The fact that the students in this sample are distinctly "average" students who might not have done as well as they did also bolsters our belief that their learning processes can be taught to other students. In terms of aptitude and intelligence, home background, and financial status, these students seem highly representative of the City Colleges student population. The average reading grade equivalent score of the students was 7.6 (for students entering their thirteenth year of school), most did average or below average work in high school, and the majority came from working-class and low-income families. In terms of personal characteristics, the interviewers termed

the students as average, very much like other students in the City Colleges. Yet these students have acquired a set of learning processes that have fostered a success pattern in their college work.

Other research on successful students has discoverd a set of psychological traits correlated with academic success, including high self-concept, inner locus-of-control, and strong achievement motivation. Teaching individuals to adopt these characteristics, however, has proven very difficult for educators. Without having measured any of these variables in this group of students, our belief is that they would score highly on each of them. We point out in this paper, for example, that these students are very highly goal oriented. We believe that the success of the students in this sample can be mostly attributed to their learning processes, rather than to their psychological attributes.

How did the students develop these learning processes and the concomitant psychological traits? Our evidence indicates that for the most part the students have learned these processes on their own, through trial and error, and in most cases within the past one or two years. The data suggest that the students lacked at earlier ages the positive psychological traits that they now display. For most of the students here, this is the first time in their lives that they have done well in school. They made a major change in their lives at some point between high school and college, usually through a personal assessment of their needs and goals. The students recognized that if they wanted a successful career, they had to begin to do some things differently. They have made an attempt to change the way they approached school; they experimented with new techniques of studying; they tried to follow their teachers' advice; or they modeled their behavior on a successful friend. Each small success led to another success and encouraged greater willingness to try new study techniques and new behavior patterns. With

these successes students developed higher self-esteem, inner locus-of-control, greater motivation, and clearer goals. Although we cannot be certain, the data do suggest a developmental sequence of success breeding success. At the same time that the students became more successful, they have developed more positive psychological traits.

We believe that an intervention program based on the four processes emphasized in this report would be very successful in the City Colleges of Chicago. By learning from other students' successes, new groups of students can begin a sequence of increased achievement, self-esteem, and motivation.

IMPLICATIONS

We envision a variety of possible strategies for training students to utilize the four processes. We feel the following can be implemented at the City Colleges of Chicago, with the expressed belief that such a combination of techniques will best ensure that large numbers of students-- subject to time and financial constraints--will become versed in the processes. We understand that alternatives to the strategies we suggest do exist and urge others to test those techniques most applicable to their institution and student population.

1. Orientation Film - We believe that the best time to alert college students to the importance of these processes and to begin the training is at the beginning of their college careers. In addition, we believe, based on the numerous recommendations of interviewees, that students will listen to peers before faculty or college staff as to the requisites for success in college. Many programs for school success fail because students are not aware of them or ignore them. A mandatory attendance film showing, presented before classes begin, using students to discuss and display the various processes, will have a greater chance for making an impact. As school begins, students are eager to do well. A film shown at orientation sessions could tap that enthusiasm and help students recognize the importance of the four processes. Such a film could be reshown in certain classes and become a point of departure for discussion and teaching of pertinent techniques.

2. Brochure/Checklist - A handout describing the processes presented in the film should also be available. The handout will explain the main points and fully describe each process. A checklist of the alternative methods for satisfactorily performing each process will be included as part of any handout. In this way, students will have a ready reference for better understanding the processes and a list of the various ways they might approach their studies to incorporate the skills.

3. Remedial Classes - Mandatory classes should be set up or parts of presently offered mandatory classes revised to teach the processes. Many honor students complained of never being taught proper study skills, while others were able to pinpoint the class or teacher who helped them. In both cases, students emphasize the need for training in skills areas. We believe that a mandatory class teaching the processes and alternative methods for their proper use would aid greatly in teaching students these successful techniques.

4. Review Classes/Tutors - We also feel that classes should be arranged, or tutors prepared, to review/restudy the methods for those who need such help. Students doing poorly should be directed to these classes and tutors.

5. Peer Tutors - Students doing well in their classwork should help others learn these processes. Such peer tutors could be trained to assist other students with problems they may have relative to the four processes.

6. Faculty In-service - Faculty must be advised of the importance of the processes and urged to discuss them in class at the beginning of the semester. Teachers could have the pupils refer to the brochure/checklist when spending several minutes on this subject with a class.

7. Counselor/Advisor training - Those individuals responsible for student programming and counseling must be made aware of the four processes. They could highlight--through the brochure or assignment to remedial classes or to a tutor--the need for paying attention to these four areas. Since students generally meet with their advisors each semester, the advisors are a valuable source for reinforcing the importance of training in the processes.

8. Experiments - Researchers must compare the impact of training in the processes to control groups of students without such training. In addition to measuring the effects of the training, experiments should compare the different strategies for implementation and identify those most effective and efficient.

This research suggests a variety of other potential studies on related topics. As already suggested, tests on the various implementation strategies will reveal the most effective and cost efficent techniques for training students in the four processes. Another interesting area for inquiry involves conducting similar research on lower-level students. We assume that our findings will be valid for high school pupils; research is needed to confirm this hypothesis. In addition, research on the processes used by primary level students may be similarly revealing, although such studies would require research designs involving more than just student interviews, possibly including classroom observations and parent interviews. In-depth case studies using several ethnographic techniques may prove the most informative in furthering our understanding of the learning processes of any level student. Community college students, especially the most successful products of the open admissions policy, have a wealth of information for educators on the teaching-learning process. Studies such as this begin to uncover some of that treasure, and we must learn from and apply what we find.

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Appendix A

Effective Student Pilot Study

Student Interview Schedule

Introduction

1. Discussion of purpose of the Center and for this particular project -- to learn how very good students function as learners in order to help other students improve. Explain why student was chosen.

2. Guarantee interviewees confidentiality and anonymity.

3. Secure permission to tape interview.

I. Background Information

1. Confirm age and address.

2. Do you live with your parents? If not, with whom? Do you have children?

3. What are your parents' occupations? What is your spouse's (roommate's) occupation?

4. How far away from school do you live and how do you get back and forth between home and school?

II. Financial Concerns

1. How do you pay for school?

2. Do you have a full or part-time job? How many hours do you work each week? How far is your job from home or school?

III. High School Background and Choice of College

1. Where did you go to high school? Tell me about how you did as a high school student? What courses did you take, what activities did you participate in? What did you like and dislike about high school? Did your friends go to college?

2. How did you decide to attend college? Who helped you make that decision? Did your high school counselor help you? Did your parents/spouse/siblings/friends encourage or help you in making your educational plans?

IV. College

1. What is your major? How did you make this choice?

2. What courses did you take in your first semester? How did you decide what courses to take and what teachers to have? Did you feel prepared for the courses? Was your academic advisor helpful?

3. Have you been taking courses you enjoy? Do you do as well in courses you don't enjoy?

4. If I were a new student, what advice would you give me about selection of courses and teachers?

V. Study and Work Habits

1. Tell me how you study for regular school assignments? (How often, where, when; library, dictionary; highlighting, notetaking; read entire assignment or just hit highpoints, read once or more) Have you tried to improve your reading skills? If so, how?

2. Tell me how you feel about tests and how you prepare for them? Do you worry about tests? How do you know what to study when you prepare for a test?

3. What do you do when you fall behind or get a poor grade on a test? (See teacher, tutor, learning resource center, PLATO, student study groups, etc.)

VI. In-Class Activities

1. How many classes do you normally miss in a semester? When you miss a class do you do anything to get the missing notes-assignments?

2. Are you able to concentrate throughout an entire class period? How do you do this? What do you do when you find your attention starting to wander?

3. Where do you like to sit in a classroom?

4. What do you do during class time? How do you take notes?

5. Do you ask questions in class when you don't understand something?

6. Do you participate in class discussions?

7. Do you volunteer answers to questions posed by teachers?

VII. Teacher Relations

1. What do you find to be the major differences between good and poor teachers? What do you do when you get a poor teacher?

2. Do you prefer to have teachers tell you exactly what to do or to allow you to make some choices on your own?

3. What kind of feedback do you like to receive on your work? How often?

4. Do you ever talk to your teachers outside of class? What do you talk to them about?

VII. Personal Goals

1. What type of goals do you set for yourself in your classes?

2. Are you pleased with the grades you've been getting in college?

3. Can you tell me what motivated you to achieve in school?

4. What are your plans after leaving this college? Do you have a career in mind?

IX. Extracurricular Activities

1. Do you have friends who help or encourage you with school work? Are these friends you met here? Where did you meet them?

2. Do you belong to school sponsored clubs, groups, etc?

X. Satisfaction

1. Are you happy at this college?

2. In terms of your school life, what would you do differently at this time from what you have done so far?

3. Is this college meeting your academic and personal needs or expectations?

XI. Conclusion

1. Do you have any specific suggestions for students who are not doing as well as you in college?

2. Do you have anything at all that you would like to add?

3. May we get back to you at some future date if necessary?

Appendix B

Student's name _____ College _____

Interviewer _____ Coder _____

EFFECTIVE STUDENT STUDY

CODING CHART

1. Student's age _____
2. Does student live with parents? (yes or no) _____
3. How long does student travel to school? (min/hrs) _____
4. How does student pay for school? (aid/work/family/svngs) _____
5. If student works, how many hours per week? _____
6. What is student's major? _____
7. What is student's career goal? _____

Use the following symbols to indicate the extent that the statements on this chart are evident in the interview:

\+ evident in interview
0 no indication of this in interview
\- evidence in interview that indicates a negative view of this

8.	Helps others in the family with school work	8 (+)	17 (0)	0 (-)
9.	Good grades (B or better) last two years of h.s.	8 (+)	12 (0)	5 (-)
10.	Participated in extracurricular activities in h.s.	18 (+)	2 (0)	5 (-)
11.	Family encourages college work	20 (+)	3 (0)	2 (-)
12.	High school counselor helpful in decision to attend college	5 (+)	10 (0)	10 (-)
13.	Found first semester courses difficult	3 (+)	12 (0)	10 (-)
14.	Took refresher courses first semester	12 (+)	7 (0)	6 (-)
15.	Academic advisor helpful in selecting first semester courses	15 (+)	5 (0)	5 (-)
16.	Doesn't do as well in disliked courses	8 (+)	9 (0)	8 (-)
17.	Studies on a regular basis	22 (+)	2 (0)	1 (-)
18.	Studies in the library	18 (+)	2 (0)	5 (-)
19.	Has regular study places	19 (+)	4 (0)	2 (-)
20.	Studies with others	17 (+)	8 (0)	0 (-)
21.	Studies alone	22 (+)	2 (0)	1 (-)
22.	Underlines in text	17 (+)	8 (0)	0 (-)
23.	Takes notes from or summarizes from text	12 (+)	13 (0)	0 (-)
24.	Uses dictionary	20 (+)	5 (0)	0 (-)
25.	Tries to improve reading skills	16 (+)	8 (0)	1 (-)
26.	Describes a study method	24 (+)	0 (0)	1 (-)
27.	Uses teacher taught study method	8 (+)	13 (0)	4 (-)
28.	Learns what to study by listening to teacher	24 (+)	1 (0)	0 (-)

29.	Figures out what's important from cues in text	15 (+)	10 (0)	0 (-)
30.	Takes notes in class	25 (+)	0 (0)	0 (-)
31.	Seeks assistance from teachers when necessary	22 (+)	1 (0)	2 (-)
32.	Waits until the last minute to study for tests	1 (+)	10 (0)	14 (-)
33.	Worries a lot about tests	10 (+)	7 (0)	8 (-)
34.	Uses college resources (PLATO, tutors)	8 (+)	13 (0)	4 (-)
35.	Reviews class notes frequently	10 (+)	15 (0)	0 (-)
36.	Attends class regularly	25 (+)	0 (0)	0 (0)
37.	Contacts teacher or colleague if misses class	22 (+)	3 (0)	0 (0)
38.	Attempts to maintain concentration in class	20 (+)	4 (0)	0 (0)
39.	Sits in front of classroom	16 (+)	1 (0)	8 (-)
40.	Asks questions of teacher if unclear	23 (+)	1 (0)	1 (-)
41.	Participates in class discussions	23 (+)	1 (0)	1 (-)
42.	Works extra hard if receives a poor grade	23 (+)	2 (0)	0 (-)
43.	Prefers detailed feedback on work	21 (+)	4 (0)	0 (-)
44.	Wants an "A" in every class	15 (+)	8 (0)	2 (-)
45.	Pleased with grades so far	15 (+)	4 (0)	6 (-)
46.	Will go on for more college (B.A.) after CCC	22 (+)	1 (0)	2 (-)
47.	Has friends who encourage good school work	15 (+)	5 (0)	5 (-)
48.	Participates in extracurricular activities	3 (+)	1 (0)	21 (-)
49.	Happy so far with experience at CCC	23 (+)	2 (0)	0 (-)

Note to Appendix B: This coding is based on 25 of the 26 interviews.

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